6th grade Math Success Plans - Maintenance

Date of Delivery: 11/7 – 11/18

Title of Activity: LCM, GCF, Adding and Subtracting Fractions and Mixed Numbers

Primary Learning Objective(s): I can add and subtract unlike fractions. I can add and subtract mixed numbers.

Materials: GCF and LCM PowerPoint, Dry Erase Materials, Pencil, Paper, Fraction Target Game sheets, Playing cards (face cards removed) for each group or set of partners, Fraction word problem worksheet

Weekly Schedule/Procedures:

Monday: Greatest Common Factor (GCF) and Least Common Multiple (LCM)

Use the Power Point to review GCF, LCM and the cake layer method. After you have gone over the slides as a group give students the following problems to do on their own or with a partner on a dry erase board or paper. The problems are on the last slide of the power point if you would like to display them.

Finding GCF – Greatest Common Factor

Make sure students understand what a factor is. The definition of a factor is "Numbers we can multiply together to get another number." There can be more than one common factor, the GCF is the greatest of the common factors.

Examples: ~3 and 4 are factors of 12 because 3*4= 12
~5 and 6 are factors of 30 because 5*6= 30
~2 and 3 are factors of 6 because 2*3=6
~5 is not a factor of 12 because

Have students solve the following on paper or a white board:

1. Find the GCF of 60 and 36
2. Find the GCF of 108 and 72
3. Find the GCF of 36, 42, 54

GCF of 60 and 36:

	5	3
2	10	6
6	60	36

GCF is 2*6= 12

GCF of 108 and 72

	3	2
4	12	8
9	108	72

GCF is 4*9= 36

GCF of 36, 42, and 54:

	6	7	9
3	18	21	27
2	36	42	54

GCF is 3*2= 6

Finding LCM – Least Common Multiple

Make sure students know what a multiple is. The definition of multiple is The result of multiplying a number by an integer"

Examples:

-15 is a multiple of 3 because 3 x 5 = 15
-14 is a multiple of 7 because 7 x 2 = 14
-6 is not a multiple of 5 because no integer multiplied by 5 will result in 6.

Have students solve the following individually or with partners:

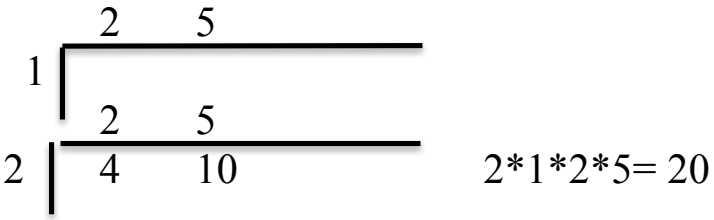
1. Find the LCM of 3 and 7
2. Find the LCM of 4 and 10
3. Find the LCM of 6 and 15

LCM of 3 and 7:

1	3	7

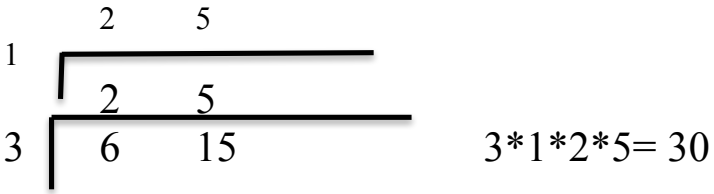
(when 1 is outside the layer, multiply straight across) 1*3*7 = 21

The LCM of 4 and 10:



2*1*2*5= 20

The LCM of 6 and 15:



3*1*2*5= 30

When using the cake layer method, the LCM is the product of the numbers multiplied together outside the cake layers which form a letter L on its side.

Tuesday: Adding and Subtracting Unlike Fractions.

Remind students that in order to add or subtract fractions, the denominator must be the same. Follow these steps:

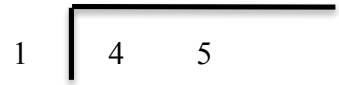
1. Find LCM for the denominator
2. Write Equivalent Fractions
3. Solve by adding or subtracting the numerators.
4. Reduce if necessary

Do the following examples and describe each step of the process:

Example 1:

$\frac{1}{4} + \frac{3}{5}$

Using LCM, find the common denominator.



LCM = 1*4*5 = 20

Write Equivalent Fractions with the LCM as the denominator:

$5*\frac{1}{4} + 4*\frac{3}{5} = \frac{5}{20} + \frac{12}{20}$

$\frac{5+12}{20} = \frac{17}{20}$ (Add the numbers in the numerators)

Example 2:

$\frac{3}{6} + \frac{6}{11}$

Use LCM to find the common denominator. LCM is 66

Write equivalent fractions with the LCM as the denominator.

$11*\frac{3}{11*6} + 6*\frac{6}{6*11} = \frac{33}{66} + \frac{36}{66}$

$\frac{33+36}{66} = \frac{69}{66}$

Reduce the final answer to the simplest form:

$\frac{69}{66} = \frac{23}{22}$ (Divide the numerator and the denominator by 3)

Remind students they are not finished until the numbers are in the simplest form.

Play the Fraction Target number game.

Wednesday: Panther Success

Thursday: Adding and subtracting mixed numbers.

Share these examples with the students:

When adding or subtracting mixed numbers, address the fractions first then address the whole numbers:

$3\frac{3}{4} + 1\frac{1}{2}$

$\frac{3}{4} + \frac{1}{2}$ Find the LCM which is 4

Write Equivalent Fractions:

$\frac{3}{4} + \frac{2}{4} = \frac{5}{4} = 1\frac{1}{4}$

Now add the whole numbers

$3 + 1 + 1\frac{1}{4} = 5\frac{1}{4}$

Subtraction Example: Address the fractions first then the whole numbers

$3\frac{3}{4} - 1\frac{1}{2}$

$\frac{3}{4} - \frac{1}{2}$ Find the LCM which is 4

Write Equivalent Fractions:

$\frac{3}{4} - \frac{2}{4} = \frac{1}{4}$

Now subtract the whole numbers

$3 - 1 = 2$, place the whole number with the fraction, the solution is $2\frac{1}{4}$

Subtracting mix numbers with borrowing example

$4\frac{1}{8} - 1\frac{1}{2}$

Address the fractions first:

$\frac{1}{8} - \frac{1}{2}$ Find the LCM, it is 8, then write Equivalent Fractions:

$\frac{1}{8} - \frac{4}{8}$

Since we can't subtract 4 from 1 in the numerators, we borrow 1 from the whole number 4, making it a 3. When demonstrating this, cross out the 4 on the board, and write a 3. We can write the borrowed 1 as any number over itself, but we choose to write it as $\frac{8}{8}$ since we are working fractions with 8 in the denominator.

Now we have:
$\frac{8}{8} + \frac{1}{8} - \frac{4}{8}$ which is $\frac{9}{8} - \frac{4}{8} = \frac{5}{8}$

Now address the whole numbers, remembering that 1 was borrowed from the 4 making it a 3. So 3 – 1 = 2 and combined with our fraction, the solution is $2\ \frac{5}{8}$

Have the students play the fraction target using mixed numbers game.

Friday:

Handout worksheet with fraction word problems: These problems involve multiple steps of adding or subtracting fractions and mixed numbers to solve.

Students can work on these problems individually or with a partner. If they work individually, they should check their process and answers with a partner.